



SEQUENCE LISTING

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(1) GENERAL INFORMATION:

- (i) APPLICANT: Cassels, Frederick J.
Loomis-Price, Lawrence
- (ii) TITLE OF INVENTION: PEPTIDES FROM A CONSENSUS PEPTIDE OF
E. COLI CS4-CFA/I FAMILY PROTEINS
- (iii) NUMBER OF SEQUENCES: 37
- (iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Hendricks and Assoc.
(B) STREET: P.O. Box 2509
(C) CITY: Fairfax
(D) STATE: VA
(E) COUNTRY: US
(F) ZIP: 22031
- (v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- (vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER: US 09/801,784
(B) FILING DATE: 09-MAR-2001
(C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: Hendricks, Glenna M.
(B) REGISTRATION NUMBER: 32,35
(C) REFERENCE/DOCKET NUMBER: cas801
- (ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: (301) 619-7808
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(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 36 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown
- (ii) MOLECULE TYPE: peptide
- (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Val	Glu	Lys	Asn	Ile	Thr	Val	Thr	Ala	Ser	Val	Asp	Pro	Thr	Ile	Asp
1				5					10					15	
Leu	Leu	Gln	Ala	Asp	Gly	Ser	Ala	Leu	Pro	Ser	Ala	Val	Ala	Leu	Thr
			20					25					30		
Tyr	Ser	Pro	Ala												
			35												

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Ala	Ser	Val	Asp	Pro	Thr	Ile	Asp	Leu	Leu	Gln	Ala
1				5				10			

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Thr	Val	Thr	Ala	Ser	Val	Asp	Pro	Thr	Ile	Asp	Leu	Leu	Gln	Ala	Asp
1				5					10					15	

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Val	Thr	Ala	Ser	Val	Asp	Pro	Thr	Ile	Asp	Leu	Leu	Gln	Ala	Asp
1				5					10					15

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Thr Ala Ser Val Asp Pro Thr Ile Asp Leu Leu Gln Ala Asp
1 5 10

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Thr Ala Ser Val Asp Pro Thr Ile Asp Leu Leu Gln Ala
1 5 10

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Val Glu Lys Asn Ile Thr Val Thr

1

5

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Glu Lys Asn Ile Thr Val Thr Ala
1 5

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Lys Asn Ile Thr Val Thr Ala Ser
1 5

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Asn Ile Thr Val Thr Ala Ser Val
1 5

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Ile Thr Val Thr Ala Ser Val Asp
1 5

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Thr Val Thr Ala Ser Val Asp Pro
1 5

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Val Thr Ala Ser Val Asp Pro Thr
1 5

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Thr Ala Ser Val Asp Pro Thr Ile
1 5

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Ala Ser Val Asp Pro Thr Ile Asp
1 5

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Ser Val Asp Pro Thr Ile Asp Leu

1

5

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Val Asp Pro Thr Ile Asp Leu Leu
1 5

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- a*
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Asp Pro Thr Ile Asp Leu Leu Gln
1 5

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Pro Thr Ile Asp Leu Leu Gln Ala
1 5

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Thr Ile Asp Leu Leu Gln Ala Asp
1 5

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Ile Asp Leu Leu Gln Ala Asp Gly
1 5

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Asp Leu Leu Gln Ala Asp Gly Ser
1 5

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

a

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Leu Leu Gln Ala Asp Gly Ser Ala
1 5

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Leu Gln Ala Asp Gly Ser Ala Leu
1 5

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Gln Ala Asp Gly Ser Ala Leu Pro

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Ala Asp Gly Ser Ala Leu Pro Ser
1 5

(2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Asp Gly Ser Ala Leu Pro Ser Ala
1 5

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Gly Ser Ala Leu Pro Ser Ala Val
1 5

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: E. coli
- (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Ser Ala Leu Pro Ser Ala Val Ala
1 5

ai (2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Ala Leu Pro Ser Ala Val Ala Leu
1 5

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Leu Pro Ser Ala Val Ala Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: E. coli

(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Pro Ser Ala Val Ala Leu Thr Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Ser Ala Val Ala Leu Thr Tyr Ser
1 5

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: E. coli
(B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Ala Val Ala Leu Thr Tyr Ser Pro

1

5

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Val Ala Leu Thr Tyr Ser Pro Ala
1 5

(2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Pro Ser Ala Val Ala Leu Thr Tyr Ser Pro
1 5 10

(2) INFORMATION FOR SEQ ID NO:37:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 37 amino acids

(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: E. coli
 (B) STRAIN: CS4-CFA/I

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Cys Val Glu Lys Asn Ile Thr Val Thr Ala Ser Val Asp Pro Thr Ile
1 5 10 15

Asp Leu Leu Gln Ala Asp Gly Ser Ala Leu Pro Ser Ala Val Ala Leu
20 25 30

Thr Tyr Ser Pro Ala
35